Developing a Comprehensive Strategy for Effective Aflatoxin Control in Africa

Meeting of Funders

March 2, 2011

Co-Sponsored by Bill &Melinda Gates and the European Commission

Overview of health, economic and trade impacts of aflatoxins in Africa, and efforts to address these.

Dr. Sarah A.H Olembo, Technical Expert , SPS and food safety

AU-DREA.

Aknowledgement

- European Commission, and
- The American Governments,
- The Bill and Melinda Gates Foundation, and other actors in the SPS field in Africa
- I wish to acknowledge your genuine interest and the sharing of our concerns in SPS issues in Africa.

INTRODUCTION and Context

- My presentation is structured as follows:
  - About AU-DREA department.
  - An overview of the health, economic and trade impacts of aflatoxins in Africa
  - The role of African Governments in harmonizing strategies for control.

THE AFRICAN UNION COMMISSION

- The African Union Commission comprises of 53 Member states.
- Offices- Addis Ababa, Ethiopia and operate throughout Africa.
- The DREA department that develops, harmonizes, and facilitates the implementation of agriculture and related policies in Africa also has the mandate to harmonize SPS policies that target food safety.

AUC and collaboration in SPS issues

The SPS issues are not only transnational, but, they demand a multidisciplinary approach involving health, trade and food security.

- Collaboration with several international partners we developed the 3ADI-with recommendations for agribusiness, agro-industries and agro-processing that promote full value chains from planting, harvesting, processing, storage, marketing and distribution..
- Joint activities with the EU towards common principles and frameworks to improve food safety in Africa have resulted in developing a referential and guide for food hygiene inspections in Africa

AFLATOXINS: 1.HEALTH EFFECTS

- The harmful effects of about 100 mycotoxins have been documented; 15 to 20 of these have particular public health and animal health significance. Because of its toxicity, aflatoxin contamination is both a food safety and public health issue. Researchers estimate that almost half of the world population- 4.5 billion people are chronically exposed to aflatoxin in varying degrees, most of them in developing countries.

Context of the problem

- One third of all maize stores –maize is one among the major staple diets in sub-Saharan Africa contain concentrations of aflatoxins that are higher than 20 ppb, the allowable health safety limit for most countries.
- The effect on human health is even more exaggerated because the aflatoxin-free foods tend to be exported, whereas aflatoxin-contaminated food is retained in the local food chains.
- Consumption of such maize led to Over 200 deaths in Kenya in 2004.

AFLATOXINS: HEALTH EFFECTS facts:

- In
  - High Doses: Lethal ((*hidden killers*).
  - Sub-lethal doses: chronic toxicity (liver cirrhosis)
  - Low levels: human hepatocellular carcinoma

- Mutagenicity
  - AFB_1 covalently binds to DNA to induce gene mutations

HEALTH EFFECTS contd

- Impaired growth in children
  - Suggested association between exposure to aflatoxins and both stunting and being underweight

    In Togo and Benin stunted and underweight children had 30 – 40% higher mean aflatoxin-albumin concentrations

- Immunosuppression
  - Continuous low level exposure to dietary aflatoxins may enhance susceptibility to HIV infection

- IARC has classified aflatoxins as Group 1 carcinogens

Further health effects

- Gambia – cord blood, breast-milk, serum from children
- Ghana – breast-milk, cord blood, urine, serum, stools
- Nigeria – urine, serum, cord blood
- Sierra Leone – breast-milk, urine, stools, serum

LIVER CANCER IN MOZAMBIQUE

Control?

- To alleviate the health problems, it is not just enough to treat the patients. We must find lasting solutions to prevent the problems in the first place. These solutions have to be found in the way we produce and store our food. But why solutions, when found are not as eye- catching to journalists and media, and do not find their way to the front pages of newspapers is a question for us to ponder upon and address during the next session on awareness creation.

Policy Interventions form the AUC

- EX.CL/Dec.609(XVIII) DECISION ON THE AFRICAN AGRIBUSINESS AND AGRO-INDUSTRIES DEVELOPMENT INITIATIVE –

The 3ADI which has recommended the promotion of standards as a quality tool in the production, ,processing, storage, marketing and distribution of agro-products is a multistake undertaking of AUC and several other partners.

- January 2011 Heads of State and Government Decision Doc.Ex.CL/631 (XVIII) on food safety

CAADP Partnership Platform that will be held in Yaounde, Cameroon 23-24 March 2011.

BIOTECHNOLOGY SOLUTIONS

"The 21st Century will be biological and diverse, with biotechnology being the kingpin of the process"

Olusegun Obasanjo - President of Nigeria

TRANSGENIC STRATEGIES TO REDUCE MYCOTOXINS IN CROPS

Reducing infection by the fungus

Degrading the mycotoxin *in planta*

Disrupting mycotoxin biosynthesis

Inducing insect resistance

- The need to adapt some existing technologies for reducing fungal contamination in foods is inevitable. However, biotechnological approaches must balance such options with strategies for mitigation and adaptation to climate change and other similar strategies for sustainable production and consumption.

2.Economic Effects:

- The indirect economic effects are primarily related to income for farmers, and
- the costs incurred in dealing with the illnesses arising from aflatoxins
- contaminated crops are forced into low value markets or, in worst cases destroyed.
- In Kenya, this year alone, 2.3 million bags of maize have been destroyed.
- Chronic infection takes a toll on farm labour
- Costs are incurred in prevention, sampling, mitigation, litigation, and research.
- State funds are diverted to import or purchase alternative foods to meet the food security needs

- Decrease in milk and egg yields, with high doses causing serious illness, which could have devastating economic impacts on the livestock and dairy sector at a time when farmers are striving for higher yields

3.Effect on trade

- Data from the EU RASSF notifications still indicate that one third (1/3 of all notification in the EU are about mycotoxins.
- Contamination by mycotoxins is a trade barrier that reduces the volume of trade and jeopardises the role of agriculture as a backbone of our economies
- West Africa annually looses 20-40%of groundnut exports to the USA due to aflatoxins.

EU MAXIMUM LIMITS FOR AFLATOXINS IN FOODS

- Products for direct consumption

	AFB1 (ppb)	Total AF (ppb)
Groundnuts, nuts, dried fruit, corn:	2	4
Spices:	5	10
Cereals (not maize):	2	4

- Products to be sorted or physically treated

Groundnuts:	8	15
Nuts, dried fruit:	5	10
Spices:	5	10

MTL'S OF AFLATOXIN IN other COUNTRIES

Country	Foods	MTL (ppb) Total Afla	MTL (ppb) AFB_1
China	Groundnuts and Maize	20	-
	Rice	10	
	Wheat	5	-
Germany	All Foods	4	2
Japan	All Foods	-	10
South Africa	All Foods	10	5
USA	All Foods	20	-

Data from FAO (1997)

IMPACT OF LOWER EU AFLATOXIN STANDARDS ON AFRICAN EXPORTS

Number of cancer deaths saved

~2 per billion people

Loss in African exports of groundnuts and cereals

US $ 670 million

Data from Otsuki *et al* (2001)

A word about regulations

- Inadequate implementation-costs too high: The result, is a plethora of products that hit the local market in West Africa, most of which are dangerous to human health.
- Standards canot be a choice for consumers in rural subsistence dwellings who form 80% of farming communities.
- Refugee situation, forced migration, and uncontrolled cross border trade, comprise ability to enforce regulations.
- Standards and regulations , yield no returns and are of no effect.

COMMENT BY KOFI ANNAN

Secretary-General, United Nations

"A World Bank study has calculated that the European Union regulation on aflatoxin costs Africa $670 million each year in exports of cereals, dried fruit and nuts.
And what does it achieve?
It may possibly save the life of one citizen of the European Union every two years.....
Surely a more reasonable balance can be found"

- If food safety and quality controls would be put in place, this would amount to a capital cost of 4.1 million USD, and a recurring cost of 15% per year. These costs would be totally offset against the benefits for export: farmers would receive a 30% price differential for their product, and export would increase from 25,000 to 210,000 t/year. This amounts to a 281 million USD premium per year for the industry.

- However, in reality, the increased stringency of EU aflatoxin standards have served neither as a significant barrier to trade nor as a significant catalyst for proactive action

CONCLUSIONS

- **The ultimate solution to the global mycotoxin problem is not regulation, but reduction of fungal infection and mycotoxin levels in crop plants in the field and in storage**
- **Improved risk communication to inform rural communities about the health hazard of mycotoxins**

- Communities will benefit from improvements in food security strategies that are supported with improved agricultural extension services, greater consumer awareness, and Public education, to control aflatoxins.

- Poverty eradication and hunger control strategies that provide a variety of food choices may contribute to strategies for solving the problem at community level.

Policy Interventions

- The African Union Commission pursues a policy of an Africa with one voice. The Summit of the January 2011 Heads of State and Government Decision Doc.Ex.CL/631 (XVIII) provides an enabling environment to address issues of food safety such as aflatoxins .
- At country level, the country investments plans through CAADP provide an opportunity to support countries in controlling aflatoxins right at the grassroots level.

- SPS issues fall under Governments obligations, who must ensure that the requirements in SPS frameworks and interventions go beyond facilitation of trade and access to markets to protect the life and health of all. These may require special interventions and tailor made solutions such as provision of drying and storage facilities ,decontamination, and awareness creation for rural communiies in Africa..

CONCLUSIONS

- Let me join others in recognizing that the mycotoxin issues are pertinent and cross cutting, and they affect us all by impacting our health, our food security and economic well being.

- SPS systems that apply at community level, and those that build on rapid alerts and withdrawal from markets will require a system for rapid information exchange on aflatoxins.

- We remain optimistic that agriculture can find the solutions in its quest as a more powerful force and engine for eradicating hunger, malnutrition and poverty- however the SPS and concerns for food safety- more so the impact of contaminants such as aflatoxins, need to be repositioned within CAADP national investment plans as programs dedicated to multiple ends, of which not only food security is central, but that our health trade, and economic development equally depend on it.

- With support from the highest policy making organ of the continent-the AUC; high ranking champions such as Kofi Annan; former Head of state such as Olusegun Obasanjo; willing partners such as the Bill and Melinda Gates Foundation; the EU; and the excellent leadership that we have observed in colleagues at the Meridian institute, we can all contribute by working together to provide the required solutions including funds to combat the aflatoxin catastrophe in Africa!!!!

- Thank YOU for Your attention

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Awareness raising and education for a holistic approach to aflatoxin control-identification and addressing the gaps

Dr. Sarah A.H Olembo, Technical Expert , SPS and food safety

AU-DREA.

Outline of the presentation:

- The need for leaders in the grey hot spots of aflatoxins
- Lessons from PACE and Tsetse control in Africa an how these may contribute the success of aflatoxin control in Africa
- Need for an African Food Safety Authority

Focus group on African Competent Authority and their TOR

- Capacity needs –physical and technical, including for border inspections
- Infrastructural needs for establishing regional and Pan-African Rapid Alert and traceability systems for food and feed
- Needs for strengthening regional and Pan-African reference laboratories for food safety

Leadership leads the way for awareness creation and public education

Target the grass root leaders:

- ie church leaders, local NGOs, women groups, Heads of local schools, Community development officers; Farmer Field Schools (FFS),
- "Embedded" the messages in the minds of people- through song and dances-that speak to communities in their local dialects- ie kayamba, and other esikuti dancers,
- Introduce in local school dramas and music festivals etc.

Our challenges

- Developing awareness, public education programs, publicity materials and other visual media that can speak to communities, villages, churches, schools, the vulnerable groups and other risky hot spots – (refugees, internally displaced persons), as well as mobile communities, and those engaged in cross border trade-particularly grain stockists and those in warehousing businesses .
- Finding those willing to take up to the challenge for leadership

- The means to spread the message rapidly.
- Developing training materials based on regional patterns and as well as in local languages.
- Reaching those at the lower end of the ladder (including women and children) and other vulnerable groups.
- Mobilizing political will both at the community and national level

Closing the gap between our intentions and the desired results for aflatoxin control–*Lessons from PACE and PATTEC*

- On site training is the key with leaders identified at all levels .(Use students and other volunteers).
- Developing robust awareness and public education programs that involve all stakeholders – a DVD?–cf STDF on trading safely
- Declaring and notifications on Aflatoxin in affected countries (along the lines of other reportable/ and notifiable diseases–*weekly?*.). This will inform and warn all consumers

- Strengthening the capacity of non state actors to make sure that they understand, advocate and push for education and other programs to help them appreciate and value quality as a virtue for safe foods in consumer health.
- Community, national and international networking efforts are of advantage

PACE and PATTEC vantage points

- PACE and PATTEC derive from the advantage that both operate from established hubs –with PACE in AUC-IBAR and tsetse fly control from the PATTEC offices
- A similar hub to coordinate and direct Food safety interventions for contaminants such as aflatoxin and other similar diseases is needed for Africa.
- There is political will and an Executive Council decision *EX.CL/Dec.620(XVIII): DECISION ON FOOD SAFETY*) in support for such an office at ARSO in Nairobi, Kenya.
- Your input in in establishing this office will be appreciated

Engaging Civil Society-civic education

- Side and promotional campaigns
- Publicity using the commonly used items such as printing aflatoxin warning messages
- Use of champions to share messages
- A channel to be aired monthly *on outlook on afaltoxins*- for Radio and television broadcasts in Member states
- CAADP to ensure that *food safety* considerations are placed in the national investment plans

Conclusion

- The idea of a PAC is indeed welcome, but it has to be linked to an African Food Safety Authority office that is equipped with resources for RASSF, for information exchange- reporting and recall mechanisms. A call in centre.
- In this context, strong consideration should be given to funding a position for a PAC coordinator at ARSO
- WE would like to follow on this proposal by inviting the PAC to work with us (April) on the task force that will develop a needs analysis for ARSO

- The time is ripe and we have the right mix of people that can work together to deliver solutions to the aflatoxin catastrophe in Africa

- Without a doubt, I know we can make a difference,
- Thank you!

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